



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D3391-021
Job Sheet 168760-A



Part No: D3391-021

Job Qty: 1 ea

Part Name: Fwd Tube Assembly



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 11/22/17

Job Tracking No:

Due Date: 12/8/17

Created By: Marie Lajeunesse

Type: Stock

Description:

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup	Run	Workcenter / Supplier	Lead Time	
					hrs	Hrs			
90	Start up Operation	1 Ea	12/7/17	12/7/17	0.00	0.00	Start Up Skid tubes		<i>MLG</i>
100	Skid tubes	1 pcs	12/7/17	12/7/17	0.00	0.82	Skid tubes		<i>MLG</i>
110	CNC Bend Skid tubes	1 pcs	12/7/17	12/7/17	0.00	1.00	CNC Bend Skid tube		<i>MLG</i>
120	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC5		<i>BE</i>
130	CNC Vertical Machining	1 pcs	12/7/17	12/7/17	2.21	1.00	HAAS 1		<i>MLG</i>
140	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC2		<i>MLG</i>
150	Mill Conv	1 pcs	12/7/17	12/7/17	0.00	0.27	Mill Conv 1		<i>J.C.L. 17-12-11</i>
160	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC2		<i>J.C.L. 17-12-11</i>
170	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC8		<i>J.C.L. 17-12-11</i>
180	Skid tubes	1 pcs	12/7/17	12/7/17	0.00	0.82	Skid tubes		<i>AP 2017-12-18</i>
190	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC5		<i>MLG 17-12-19</i>
200	HandFinish	1 pcs	12/7/17	12/7/17	0.00	0.33	HandFinish1		<i>MLG 17-12-19</i>
210	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC7		<i>MLG 17-12-20</i>
220	Skid tubes	1 pcs	12/7/17	12/7/17	0.00	0.82	Skid tubes		<i>MLG 17-12-20</i>
230	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC5		<i>MLG 17-12-20</i>
235	HandFinish	1 pcs	12/7/17	12/7/17	0.00	0.33	HandFinish2		<i>MLG 17-12-20</i>
245	Spray Paint	1 pcs	12/7/17	12/7/17	0.00	0.99	Spray Paint		<i>MLG 17-12-20</i>
250	QC	1 pcs	12/7/17	12/7/17	0.00	0.00	QC14		<i>MLG 17-12-20</i>
254	HandFinish	1 pcs	12/8/17	12/8/17	0.00	0.33	HandFinish4		<i>MLG 17-12-20</i>
256	QC	1 pcs	12/8/17	12/8/17	0.00	0.00	QC5		<i>MLG 17-12-20</i>
260	Packaging	1 pcs	12/8/17	12/8/17	0.00	0.00	Packaging3		<i>MLG 17-12-20</i>
280	QC21-SA	1 Ea	12/8/17	12/8/17	0.00	0.00	QC21		<i>MLG 17-12-20</i>

Part Op 100 - Cut as per dwg.

Descriptions: 110 - Bend as per Dwg D3391 Using Bend Prog 3391021 *6.81"*

130 - 1-Machine as per Folio FA590 Rev. *AA* & Dwg D3391 Rev. *5*

150 - Drill X1 Aft cap as per Dwg D3391 .1875" dia

180 - 1-Drill Remaining two holes for tow cap using DT 8819 Locating off of .1875" holes drilled in previous step 2-Drill float bag holes as per Dwg D3391 using DT8798(Do not open tow cap holes to finish size) (ONLY DRILL HOLES MARKED "A") 6-Deburr & Scribe Batch number Inside aft end. 7-Transfer drill D3391-021 with D3391-023

220 - 1-instal spacers as per dwg D3391 A/R Magnabond 6398 batch: *M137712* exp. date: *2018-01* cure time 12hrs. as per QSI015 2- grind crossbolt flush 3-back drill crossbolt if necessary

235 - AND REALODINE AS PER QSI 005

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
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DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE



QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____

Part No. _____

DISPOSITION

Rework ☐
Scrap ☐
Use-as-is ☐
approved ☐

Skid-tube ☐
Machining ☐
Thermoforming ☐
Large Fab ☐

AGAINST DEPARTMENT/PROCESS

Cross tube ☐
Small Fab ☐
Finishing ☐
Composite ☐
Water Jet ☐
Prod. Eng. Coord. ☐
Rec/Store/Packaging ☐
Supplier ☐

Engineering ☐
Quality ☐
Other ☐

QTY Effective : _____

MRB (QSI042) Approval

Disposition

Completed By

Lead hand / Supervisor
Approval Verification

QC / QA Coordinator
Approval

FAULT CATEGORY

☐ Temperature/Cure
☐ Set-up
☐ BOM/Route
☐ Broken/Damage/Defect
☐ Inspection Incomplete/Unqualified
☐ Contamination
☐ Countersink
☐ Cut Too Short
☐ Instructions Incomplete/Unclear
☐ Drill Holes

☐ Power Loss/Surge
☐ Folio/Program
☐ Grain
☐ Weld
☐ Wrong Stock Pulled
☐ Out of Sequence
☐ Off-set
☐ Mislabelled
☐ Fit/Function
☐ Misaligned/off center

☐ Positioned Wrong
☐ Outside Dimensions
☐ Over/Under tolerance
☐ Part Incorrect
☐ Part Lost/Missing
☐ Part Moved
☐ Drawing
☐ Finish
☐ Misread
☐ Turning Sequence

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S016991



Fwd Tube Assembly

D3391-021

PART NO:

Revision:

Operation:

Change No:

Start up Operation

Mfg Date: 12/04/17

Job No: 168760-A

Past Due

OTHER :

90-Start up Operation	D6013-047	B6664	1	63	0	0
220-Skidtubes	D3670-4-200	B65393	4	78	0	0
254-HandFinish	ALG-1032-225	AELS-1032-225	X 5007280	0	0	0
	AN3C4A	5019394	10	1,093	0	0
	D3401-041	F155540	1	11	0	0
	D3672-1	F150074	4	1,741	0	0
	D4095-051	M159902-127	1	40	0	0
	NAS1149C0332R	5019380-10	10	3,419	0	0

Part Specifications

Specifications could not be found.

000506

Plex 11/22/17 1:28 PM Dart.lajeunesse.marie

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :	Step #:	QTY Effective :				MRB (QSI042) Approval	
Description Work Order Deviation		Disposition				Completed By	
						Lead hand / Supervisor Approval Verification	
						QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY					
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabelled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	OTHER : ☐	

INSPECTION SHEET

Rev	Date	Change	Revised by	Approved
A	06.04.27	New Issue P/O D3391-011/-021	KJ/JLM	
B	06.06.19	Tolerances revised per D3391 Rev. E	KJ/JLM	
C	07.03.21	Dimensions removed per Dwg rev. F	KJ/JLM	
D	07.11.23	Dwg Rev. updated	KJ/EC/DD	
E	09.12.14	Dwg Rev updated	KJ	
F	11.06.21	Dimension 0.500 added	KJ	
G	12.05.15	Dwg Rev updated	KJ	
H	16.06.23	Dimensions updated per Dwg Rev J	KJ	

INSTALL D3670-4200 SPACER
SEAL WITH MAGNOBOND 6398
GRIND FLUSH
PRIOR TO PAINTING
4 PL

DETAIL B



INSTALL
AELS-1032-225
AFTER FINISH
10 PL

D4095-051
WEARSHOE

AN3C4A BOLT
NAS1149C0332R WASHER
6 PL

D3391-021 FWD TUBE ASSEMBLY ASSEMBLY DETAIL

SEAL WITH
SIKAFLEX-241/-291



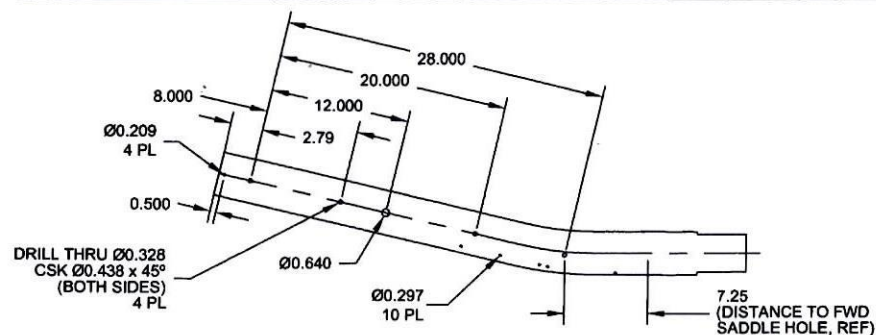
AN3C4A BOLT
D3672-1 WASHER
NAS1149C0332R WASHER
4 PL

D3401-041
TOW CAP

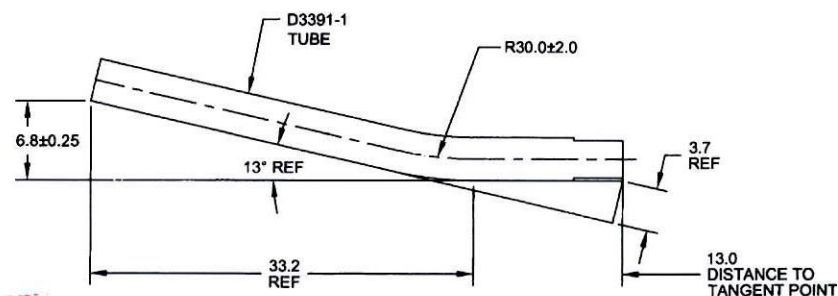
DETAIL B SCALE 2X

D3391-021 FWD TUBE ASSEMBLY PARTS LIST

QTY -021	PART NUMBER	DESCRIPTION
X	D3391-021	FWD TUBE ASSEMBLY
1	D3391-1	TUBE
1	D3401-041	TOW CAP
4	D3670-4200	SPACER
4	D3672-1	WASHER
1	D4095-051	WEARSHOE
10	AELS-1032-225	INSERT
10	AN3C4A	BOLT
10	NAS1149C0332R	WASHER



D3391-021 DRILLING DETAIL

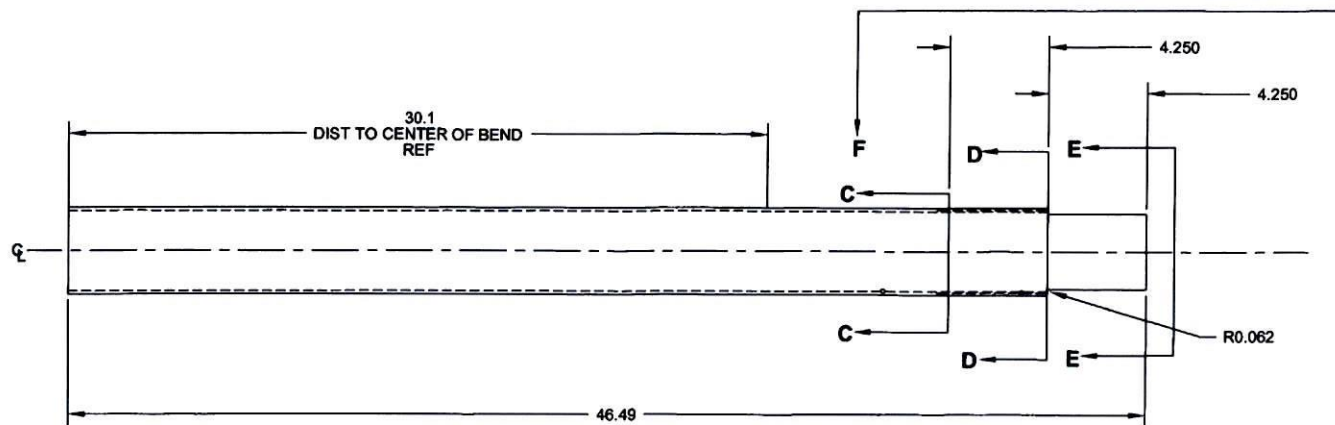


D3391-021 BENDING DETAIL (MAKE FROM D3391-1)

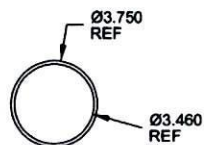
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 168760A M/S
17-11-22

RELEASED
2016-04-28

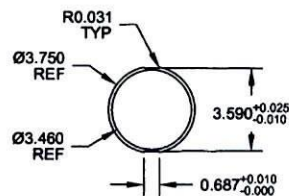
DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	ML	EUGENE, OR	
CHECKED	CP	DRAWING NO.	REV.
MFG. APPR.		D3391	SHEET 4 OF 1
APPROVED		TITLE	SCALE
DE APPR.		412 FLOAT SKIDTUBE	NT
DATE	16.01.14	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	



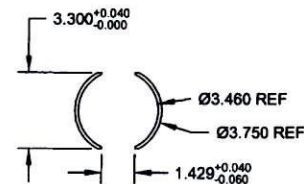
D3391-1 TUBE
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



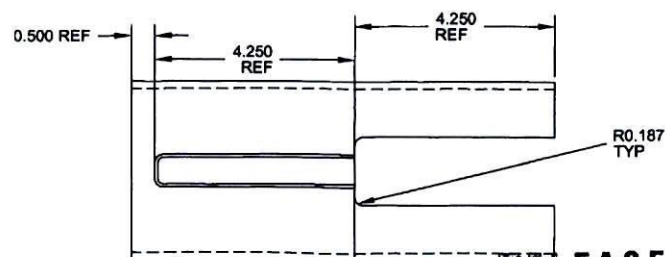
SECTION C-C



SECTION D-D



SECTION E-E



VIEW F-F
SCALE 2X

RELEASED
2016-04-28

DESIGN	PH	DART AEROSPACE USA, INC	
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MFG. APPR.			SHEET 5 OF 11
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